



Mitchell E. Daniels, Jr.
Governor

Thomas W. Easterly
Commissioner

100 North Senate Avenue
Indianapolis, Indiana 46204
(317) 232-8603
(800) 451-6027
www.IN.gov/idem

TO: Interested Parties / Applicant
DATE: June 1, 2005
RE: Countrymark Cooperative, LLP / 129-21168-00003
FROM: Paul Dubenetzky
Chief, Permits Branch
Office of Air Quality

Notice of Decision: Approval - Effective Immediately

Please be advised that on behalf of the Commissioner of the Department of Environmental Management, I have issued a decision regarding the enclosed matter. Pursuant to IC 13-17-3-4 and 326 IAC 2, this approval is effective immediately, unless a petition for stay of effectiveness is filed and granted, and may be revoked or modified in accordance with the provisions of IC 13-15-7-1.

If you wish to challenge this decision, IC 4-21.5-3-7 and IC 13-15-7-3 require that you file a petition for administrative review. This petition may include a request for stay of effectiveness and must be submitted to the Office Environmental Adjudication, 100 North Senate Avenue, Government Center North, Room 1049, Indianapolis, IN 46204, **within eighteen (18) calendar days of the mailing of this notice**. The filing of a petition for administrative review is complete on the earliest of the following dates that apply to the filing:

- (1) the date the document is delivered to the Office of Environmental Adjudication (OEA);
- (2) the date of the postmark on the envelope containing the document, if the document is mailed to OEA by U.S. mail; or
- (3) The date on which the document is deposited with a private carrier, as shown by receipt issued by the carrier, if the document is sent to the OEA by private carrier.

The petition must include facts demonstrating that you are either the applicant, a person aggrieved or adversely affected by the decision or otherwise entitled to review by law. Please identify the permit, decision, or other order for which you seek review by permit number, name of the applicant, location, date of this notice and all of the following:

- (1) the name and address of the person making the request;
- (2) the interest of the person making the request;
- (3) identification of any persons represented by the person making the request;
- (4) the reasons, with particularity, for the request;
- (5) the issues, with particularity, proposed for considerations at any hearing; and
- (6) identification of the terms and conditions which, in the judgment of the person making the request, would be appropriate in the case in question to satisfy the requirements of the law governing documents of the type issued by the Commissioner.

If you have technical questions regarding the enclosed documents, please contact the Office of Air Quality, Permits Branch at (317) 233-0178. Callers from within Indiana may call toll-free at 1-800-451-6027, ext. 3-0178.

Enclosures
FNPER-MOD.dot 1/10/05



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

We make Indiana a cleaner, healthier place to live.

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Governor

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June 1, 2005

Mr. John Deaton
Countrymark Cooperative, LLP
1200 Refinery Road
Mount Vernon, IN 47620

Re: 129-21168-00003
Second Minor Source Modification to
Part 70 Permit No.: 129-7882-00003

Dear Mr. Deaton:

Countrymark Cooperative, LLP was issued a Part 70 permit on July 21, 2003, for the operation of a petroleum refinery. An application to modify the source was received by the Office of Air Quality (OAQ) on March 15, 2004. Pursuant to the provisions of 326 IAC 2-7-10.5 the following emission units are approved for construction at the source:

- (a) One (1) Vacuum heater, identified as 200-H6, with a maximum heat input rate of 5.49 mmBtu/hr, combusting refinery fuel gas and natural gas as a backup, installed in 2005 and exhausting to stack 126.

The following construction conditions are applicable to the proposed project:

General Construction Conditions

1. The data and information supplied with the application shall be considered part of this source modification approval. Prior to any proposed change in construction which may affect the potential to emit (PTE) of the proposed project, the change must be approved by the Office of Air Quality (OAQ).
2. This approval to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.
3. Effective Date of the Permit
Pursuant to IC 13-15-5-3, this approval becomes effective upon its issuance.
4. Pursuant to 326 IAC 2-1.1-9 and 326 IAC 2-7-10.5(i), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.
5. All requirements and conditions of this construction approval shall remain in effect unless modified in a manner consistent with procedures established pursuant to 326 IAC 2.
6. Pursuant to 326 IAC 2-7-10.5(l) the emission units constructed under this approval shall not be placed into operation prior to revision of the source's Part 70 Operating Permit to incorporate the required operation conditions.

This minor source modification authorizes the construction or modification of the above listed unit. Operating conditions shall be incorporated into the Part 70 operating permit as a significant permit modification in accordance with 326 IAC 2-7-10.5(l)(2) and 326 IAC 2-7-12. Operation is not approved until the significant permit modification has been issued.

This decision is subject to the Indiana Administrative Orders and Procedures Act - IC 4-21.5-3-5. If you have any questions on this matter, please contact Adeel Yousuf, c/o OAQ, 100 North Senate Avenue, P.O. Box 6015, Indianapolis, Indiana, 46206-6015, or at 973-575-2555, extension 3252, or dial 1-800-451-6027, and ask for extension 3-6878.

Sincerely,

Original Signed by
Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

Attachments
AY / EVP

cc: File – Posey County
U.S. EPA, Region V
Posey County Health Department
Air Compliance Section Inspector
Compliance Data Section
Administrative and Development
Technical Support and Modeling - Michele Boner



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PART 70 OPERATING PERMIT OFFICE OF AIR QUALITY

**Countrymark Cooperative, LLP
 1200 Refinery Road
 Mount Vernon, Indiana 47620**

(herein known as the Permittee) is hereby authorized to operate subject to the conditions contained herein, the source described in Section A (Source Summary) of this permit.

The Permittee must comply with all conditions of this permit. Noncompliance with any provisions of this permit is grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. Noncompliance with any provision of this permit, except any provision specifically designated as not federally enforceable, constitutes a violation of the Clean Air Act. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. An emergency does constitute an affirmative defense in an enforcement action provided the Permittee complies with the applicable requirements set forth in Section B, Emergency Provisions.

This permit is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

Operation Permit No.: T129-7882-00003	
Issued by: Janet G. McCabe, Assistant Commissioner Office of Air Quality	Issuance Date: July 21, 2003 Expiration Date: July 21, 2008
Minor Source Modification: MSM 129-21168-00003	
Issued by: Original Signed by Paul Dubenetzky, Chief Permits Branch Office of Air Quality	Pages Affected: 10b, 37, 38,41 and 47 Issuance Date: June 1, 2005

- (6) Miscellaneous (Sampling, Blowing, Purging, etc.), identified as 073;
 - (7) flanges, identified as 095;
 - (8) pump Seals Light Liquid, identified as 096;
 - (9) pump Seals Heavy Liquid, identified as 097;
 - (10) compressor Seals - Gas, identified as 098;
 - (11) compressor Seals - Heavy Liquid, identified as 099;
 - (12) drains, identified as 100;
 - (13) vessel Relief Valves, identified as 101; and
 - (14) cooling Towers, identified as 119.
- (nn) One (1) Vacuum heater, identified as 200-H6, with a maximum heat input rate of 5.49 mmBtu/hr, combusting refinery fuel gas and natural gas as a backup, installed in 2005 and exhausting to stack 126.

A.4 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)][326 IAC 2-7-5(15)]

This stationary source also includes the following insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21):

- (a) Metal and related material cutting, fabricating and preparation. [326 IAC 6-3]
- (b) Sand blasting or mechanical stripping on tanks and other equipment. [326 IAC 6-3]
- (c) Painting on tanks and other equipment. [326 IAC 6-3]
- (c) Welding/Cutting of metal for vessel, pipeline and equipment maintenance. [326 IAC 6-3]

A.5 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

- (a) It is a major source, as defined in 326 IAC 2-7-1(22);
- (b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

SECTION D.2

FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]

- (a) One (1) CCR Platformer Unit which includes one (1) CCR Platformer Heater, identified as 300 - H1, H2, H3 with a maximum heat input rate of 70.3 mmBtu/hr, combusting refinery fuel gas, installed in 1992 and exhausting to stack 74.
- (b) One (1) FCCU regenerator, identified as V-5 with an average throughput rate of 380 barrels fresh feed per hour, installed in 1950, controlled by a cyclone and exhausting to stack 10.
- (c) One (1) Hydrotreating Unit Reactor charge heater (210-H-100), identified as 122, with a maximum heat input rating of 19.25 MMBtu per hour, combusting refinery fuel gas as a primary fuel and natural gas as a back up fuel, and exhausting through one (1) stack identified as 122 (to be constructed in 2005).
- (d) One (1) Hydrotreating Unit Reboiler Stabilizer (210-H-101), identified as 123, with a maximum heat input rating of 19.94 MMBtu per hour, combusting refinery fuel gas as a primary fuel and natural gas as a back up fuel, and exhausting through one (1) stack identified as 123 (to be constructed in 2005).
- (e) One (1) Tail Gas Treatment System and Sulfur Recovery System identified as 124 and consisting of the following:
 - (1) One (1) Claus Unit Startup burner (520-H-101), identified as 124-1, with a maximum heat input rating of 1.54 MMBtu per hour, combusting natural gas, and exhausting through one (1) stack identified as 124-1 (to be constructed in 2005).
 - (2) One (1) Tail Gas Treating Unit (TGTU) Incinerator burner (520-H-101), identified as 124-2, with a maximum heat input rating of 1.29 MMBtu per hour, combusting refinery fuel gas as a primary fuel and natural as a back fuel, and exhausting through one (1) stack identified as 124-2 (to be constructed in 2005). In the event of unscheduled shutdown of the CCR unit, the Sulfur Recovery Unit effluent will be routed directly to the TGTU incinerator.
 - (3) One (1) Tail Gas Treating Unit (TGTU) Incinerator (520-H-162), identified as 124-3, with a maximum process flow rate of 48,000 dry standard cubic feet per day, and exhausting through one (1) stack identified as 124-3 (to be constructed in 2005).
 - (4) One (1) Sour Flare (520-H-163), identified as 124-4, with a maximum burner capacity of 0.92 MMBtu per hour, and a maximum process flow rate of 200 standard cubic feet per hour, and exhausting through one (1) stack identified as 124-4 (to be constructed in 2005).
- (f) One (1) Vacuum heater, identified as 200-H6, with a maximum heat input rate of 5.49 mmBtu/hr, combusting refinery fuel gas and natural gas as a backup, installed in 2005 and exhausting to stack 126.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.1 General Provisions Relating to HAPs [326 IAC 12-1-1] [40 CFR Part 60, Subpart A]

The provisions of 40 CFR Part 60, Subpart A - General Provisions, which are incorporated as 326 IAC 12-1-1, apply to one (1) CCR platformer described in this section except when otherwise specified in 40 CFR Part 60, Subpart J.

D.2.2 General Provisions Relating to HAPs [326 IAC 20-1-1] [40 CFR Part 63, Subpart A]

- (a) The provisions of 40 CFR Part 63, Subpart A - General Provisions, which are incorporated as 326 IAC 20-1-1, apply to the facilities described in this section except when otherwise specified in 40 CFR Part 63, Subpart UUU.
- (b) The provisions of 40 CFR 63 Subpart A - General Provisions, which are incorporated as 326 IAC 20-1-1, apply to the affected sources, as designated by 40 CFR 63.7506(b). The Permittee must comply with these requirements on and after the effective date of 40 CFR 63, Subpart DDDDD.

D.2.3 Petroleum Refineries NSPS [326 IAC 12-1-1] [40 CFR 60, Subpart J]

The CCR Platformer Heater, Hydrotreater Unit Reactor Charge heater (122), Hydrotreater Unit Stabilizer Reboiler Heater (123), and Gas Treatment System & Sulfur Recovery System consisting of TGTU Incinerator Burner (124-2), Sour Flare (124-4), and Vacuum heater (200-H6) are subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.100, Subpart J) "Standards of Performance for Petroleum Refineries," because the refinery fuel gas combustion devices commenced construction or modification after June 11, 1973.

D.2.4 Petroleum Refineries NESHAP [326 IAC 20-1-1] [40 CFR 63, Subpart UUU]

Pursuant to 40 CFR 63.1560, the one (1) existing catalytic cracking unit and one (1) catalytic reforming unit, known as FCCU regenerator and CCR Platformer Unit, respectively, and the new Sulfur Recovery Unit and TGTU, identified as 124, and the bypass lines serving these units are subject to the National Emission Standards for Hazardous Air Pollutants (NESHAP), 326 IAC 20-14, (40 CFR 63, Subpart UUU), with a compliance date of April 11, 2005 except as specified in 40 CFR 63.1563 paragraph (c).

The Permittee shall submit a notification of compliance options chosen no later than 180 days prior to the initial compliance date, which is April 11, 2005. The notification of compliance options chosen shall contain all the information required in 40 CFR 63.1570 through 63.1573 that is appropriate for the facility.

D.2.5 Standards for Sulfur Oxides Emissions from Fuel Gas Combustion Devices [40 CFR 60.104]

Pursuant to 40 CFR 60.104, the following shall apply to the CCR Platformer Heater, Hydrotreater Unit Reactor Charge heater (122), Hydrotreater Unit Stabilizer Reboiler Heater (123), Gas Treatment System & Sulfur Recovery System consisting of TGTU Incinerator Burner (124-2), and Vacuum heater (200-H6):

The Permittee that is subject to the requirements of this subpart shall comply with the emission limitations set forth in this section on and after the date on which the initial performance test, required by 60.8, is completed, but not later than 60 days after achieving the maximum production rate at which the affected facility will be operated, or 180 days after initial startup, whichever comes first.

No Permittee subject to the provisions of this subpart shall burn in any fuel gas combustion device any fuel gas that contains hydrogen sulfide (H₂S) in excess of 230 mg/dscm (0.10 gr/dscf). The combustion in a flare of process upset gases or fuel gas that is released to the flare as a result of relief valve leakage or other emergency malfunctions is exempt from this paragraph.

D.2.6 NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters [326 IAC 20-1-1] [40 CFR Part 63, Subpart DDDDD]

Pursuant to 40 CFR 63.7490, the provisions of 40 CFR 63, Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters, apply to the Hydrotreater Unit Reactor Charge and Stabilizer Reboiler Heaters, identified as 122 and 123, respectively, because these are new facilities being constructed after January 13, 2003 and meet the criteria in the definition in 40 CFR 63.7575 for the large gaseous fuel subcategory.

D.2.7 Standards for Metal HAP Emissions from Catalytic Cracking Units [40 CFR 63.1564]

(a) Pursuant to 40 CFR 63.1564, the following emission limitations and work practice standards shall apply to the FCCU regenerator:

- (1) The Permittee shall comply with each applicable emission limitation in Table 1 of this subpart. This catalytic cracking unit is not subject to the NSPS for PM, therefore, the Permittee must choose a compliance option from the four options listed in 40 CFR 63.1564 paragraphs (a)(1)(i) through (iv).
- (2) The Permittee shall comply with each applicable operating limit in Table 2 of this subpart.
- (3) The Permittee shall prepare an operation, maintenance, and monitoring plan according to the requirements in 40 CFR 63.1574(f) and operate at all times according to the procedures in the plan.
- (4) The applicable emission limitations and operating limits for metal HAP emissions from catalytic cracking units required in 40 CFR 63.1564 paragraphs (a)(1) and (2) do not apply during periods of planned maintenance preapproved by IDEM, OAQ according to the requirements in 40 CFR 63.1575(j).

- (2) Demonstrate continuous compliance with the work practice standard in paragraph (a)(2) of 40 CFR 63.1569 by complying with the procedures in the operation, maintenance, and monitoring plan.

D.2.13 Emission Limits and Work Practice Standards [326 IAC 20-1-1] [40 CFR Part 63, Subpart DDDDD]

Pursuant to 40 CFR 63.7500, the Permittee shall comply with the following requirements.

- (a) The Permittee shall meet each emission limit and work practice standard in Table 1 of this subpart that applies to the boiler or process heater, except as provided under §63.7507.
- (b) The Permittee must meet each operating limit in Tables 2 through 4 to this subpart that applies to the boiler or process heater. If the Permittee uses a control device or combination of control devices not covered in Tables 2 through 4 to this subpart, or wishes to establish and monitor an alternative operating limit and alternative monitoring parameters, the Permittee must apply to the United States Environmental Protection Agency (EPA) Administrator for approval of alternative monitoring under §63.8(f).

As provided in §63.6(g), EPA may approve use of an alternative to the work practice standards in this section.

D.2.14 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for the CCR platformer heater, identified as 300 - H1, H2, H3, FCCU regenerator, identified as V-5, Hydrotreater Unit Reactor Charge heater (122), Hydrotreater Unit Stabilizer Reboiler Heater (123), Gas Treatment System & Sulfur Recovery System consisting of TGTU Incinerator Burner (124-2), Vacuum heater (200-H6) and any control devices.

Compliance Determination Requirements [326 IAC 2-1.1-11] [326 IAC 2-7-6(1)]

D.2.15 Performance Testing [40 CFR 60.106]

During the period between 60 and 180 days following the effective date of becoming subject to the rule 40 CFR 60.104, in order to demonstrate compliance with Condition D.2.5, the Permittee shall perform H₂S testing for the CCR Platformer Heater, Hydrotreater Unit Reactor Charge heater (122), Hydrotreater Unit Stabilizer Reboiler Heater (123), Gas Treatment System & Sulfur Recovery System consisting of TGTU Incinerator Burner (124-2), and Vacuum heater (200-H6) utilizing methods as approved by the Commissioner. Testing shall be conducted in accordance with Section C- Performance Testing.

Pursuant to 40 CFR 60.106, the following test methods and procedures shall apply to the refinery fuel gas combustion device:

- (a) In conducting the performance tests required in 60.8, the Permittee shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in 60.8(b).
- (b) The Permittee shall determine compliance with the H₂S standard in 60.104(a)(1) as follows: Method 11 shall be used to determine the H₂S concentration. The gases entering the sampling train should be at about atmospheric pressure. If the pressure in the refinery fuel gas lines is relatively high, a flow control valve may be used to reduce the pressure. If the line pressure is high enough to operate the sampling train without a vacuum pump, the pump may be eliminated from the sampling train. The sample shall be drawn from a point near the centroid of the fuel gas line. The sampling time and sample volume shall be at least 10 minutes and 0.010 dscm (0.35 dscf). Two samples of equal sampling times shall be taken at about 1-hour intervals. The arithmetic average of these two samples shall constitute a run. For most fuel gases, sampling times exceeding 20 minutes may result in depletion of the collection solution, although fuel gases containing low concentrations of H₂S may necessitate sampling for longer periods of time.

- (e) The Permittee may not conduct performance tests during periods of startup, shutdown, or malfunction.
- (f) The Permittee must conduct three separate test runs for each performance test required in 40 CFR 63.7520, as specified in §63.7(e)(3). Each test run must last at least 1 hour.
- (g) To determine compliance with the emission limits, the Permittee must use the F-Factor methodology and equations in sections 12.2 and 12.3 of EPA Method 19 of appendix A to part 60 of this chapter to convert the measured particulate matter concentrations, the measured HCl concentrations, the measured TSM concentrations, and the measured mercury concentrations that result from the initial performance test to pounds per million Btu heat input emission rates using F-factors.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.2.19 Continuous Monitoring [40 CFR 60.105]

- (a) Pursuant to 40 CFR 60.105, the CCR Platformer Heater, identified as 300 - H1, H2, H3, has applicable compliance monitoring conditions as specified below:

Pursuant to a September 16, 1984 letter from the USEPA, an Alternative monitoring plan was approved with the following conditions.

- (1) The fuel gas must be sampled every 8 hours during the unit's operation at the representative location and analyze the H₂S concentration using three Draeger tubes with a span of 0-15 parts per million (ppm) for each sampling effort.
 - (2) Average the Draeger tube readings for each sampling event.
 - (3) If the results H₂S concentrations exceed 10 ppm, within 1 hour begin performing H₂S sampling and analysis every hour using three Draeger tubes with a span of 0-200 ppm.
 - (4) When 3 consecutive hours of sampling with the 200 ppm Draeger tubes indicate that the H₂S concentration is below 10 ppm, revert to using the 15 ppm Draeger tubes every 8 hours.
 - (5) If the H₂S ever exceeds 80 ppm, install and certify an H₂S CEM within 180 days and, in the meantime, follow this approved alternative monitoring method.
 - (6) Submit quarterly summary reports indicating all instances when the H₂S concentration exceeded 10 ppm, the actual H₂S concentration, and times when the unit was not operational.
 - (7) Maintain records of the Draeger tube results used to prepare the quarterly reports on file for at least 2 years.
- (b) Pursuant to 40 CFR 60.105, the Hydrotreater Unit Reactor Charge heater (122), Hydrotreater Unit Stabilizer Reboiler Heater (123), Gas Treatment System & Sulfur Recovery System consisting of TGTU Incinerator Burner (124-2), and Vacuum heater (200-H6) have applicable compliance monitoring conditions as specified below:
 - (1) Continuous monitoring systems shall be installed, calibrated, maintained, and operated by the owner or operator subject to the provisions of this subpart as follows:
 - (a) For fuel gas combustion devices subject to 40 CFR 60.104(a)(1), an instrument for continuously monitoring and recording the concentration by volume (dry basis, zero percent excess air) of SO₂ emissions into the atmosphere (except where an H₂S monitor is installed under paragraph (a)(4) of 40 CFR 60.105. The monitor shall include an oxygen monitor for correcting the data for excess air.
 - (i) The span values for this monitor are 50 ppm SO₂ and 25 percent oxygen (O₂).
 - (ii) The SO₂ monitoring level equivalent to the H₂S standard under 40 CFR 60.104(a)(1) shall be 20 ppm (dry basis, zero percent excess air).

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for a Minor Source Modification and Significant Permit Modification

Source Background and Description

Source Name:	Countrymark Cooperative, LLP
Source Location:	1200 Refinery Road, Mount Vernon, Indiana 47620
County:	Posey
SIC Code:	2911
Operation Permit No.:	T129-7882-00003
Operation Permit Issuance Date:	July 21, 2003
Source Modification No.:	129-21168-00003
Permit Modification No.:	129-21251-00003
Permit Reviewer:	Adeel Yousuf / EVP

The Office of Air Quality (OAQ) has reviewed a modification application from Countrymark Cooperative, LLP relating to the operation of a petroleum refinery.

History

On May 3, 2005, Countrymark Cooperative, LLP submitted an application to the OAQ requesting to add one (1) Vacuum heater. Countrymark Cooperative, LLP was issued a Part 70 permit on July 21, 2003.

New Emission Units and Pollution Control Equipment

The application includes information relating to the construction and operation of the following equipment pursuant to 326 IAC 2-7-5(16):

- (a) One (1) Vacuum heater, identified as 200-H6, with a maximum heat input rate of 5.49 mmBtu/hr, combusting refinery fuel gas and natural gas as a backup, installed in 2005 and exhausting to stack 126.

Existing Approvals

The source was issued a Part 70 Operating Permit (T129-7882-00003) on July 21, 2003. The source has since received the following:

- (a) First Minor Source Modification No.: 129-18135, issued on November 17, 2003.
- (b) First Significant Permit Modification No.: 129-17940, issued on November 24, 2003.
- (c) First Significant Source Modification No.: 129-18672, issued on February 1, 2005.
- (d) Second Significant Permit Modification No.: 129-20112, issued on March 21, 2005.
- (e) First Administrative Amendment No.: 129-20343, issued on March 30, 2005.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
126	Vaccum heater	426	33	2578	760

Recommendation

The staff recommends to the Commissioner that the Minor Source Modification and Significant Permit Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on May 3, 2005.

Emission Calculations

See Appendix A of this document for detailed emissions calculations (Appendix A, page 1).

Potential To Emit Before Controls (Modification)

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA.”

Pollutant	Potential To Emit (tons/year)
PM	0.238
PM-10	0.238
SO ₂	0.894
VOC	0.172
CO	2.633
NO _x	2.405

HAP's	Potential To Emit (tons/year)
Hexane	0.056
Others	0.002
TOTAL	0.058

Justification for Modification

The Part 70 operating permit is being modified through both a Part 70 Minor Source Modification and Significant Permit Modification. These modifications are being performed based on the following justification:

- (a) This modification is being performed pursuant to 326 IAC 2-7-10.5(d)(5) since it is subject to the requirements of a New Source Performance Standards (NSPS).
- (b) The proposed operating conditions shall be incorporated into the Part 70 Operating Permit as a Significant Permit Modification (No. 129-21251-00003) in accordance with 326 IAC 2-7-12(b)(1)(E) because the new unit is subject to the requirements of NSPS, Subpart J, which is a Title I modification pursuant to 326 IAC 2-7-12(b)(1)(D)(i). The Significant Permit Modification will give the source approval to operate the proposed emission unit.

County Attainment Status

The source is located in Posey County.

Pollutant	Status
PM-10	Attainment
PM-2.5	Attainment
SO ₂	Attainment
NO ₂	Attainment
1-hour Ozone	Attainment
8-hour Ozone	Attainment
CO	Attainment
Lead	Attainment

- (a) Volatile organic compounds (VOC) and Nitrogen Oxides (NOx) are regulated under the Clean Air Act (CAA) for the purposes of attaining and maintaining the National Ambient Air Quality Standards (NAAQS) for ozone. Therefore, VOC emissions and NOx are considered when evaluating the rule applicability relating to ozone. Posey County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions and NOx were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (b) Posey County has been classified as attainment for PM2.5. U.S. EPA has not yet established the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 for PM 2.5 emissions. Therefore, until the U.S.EPA adopts specific provisions for PSD review for PM2.5 emissions, it has directed states to regulate PM10 emissions as surrogate for PM2.5 emissions.
- (c) Posey County has been classified as attainment or unclassifiable in Indiana for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (d) Fugitive Emissions
Since this type of operation is one of the 28 listed source categories under 326 IAC 2-2, the fugitive particulate matter (PM) and volatile organic compound (VOC) emissions are counted toward determination of PSD and Emission Offset applicability.

Source Status

Existing Source PSD Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	not reported
PM-10	44.0
SO ₂	643.0
VOC	668.0
CO	7,919
NO _x	453.0

- (a) This existing source is a major stationary source because an attainment regulated pollutant is emitted at a rate of 100 tons per year or more, and it is one of the 28 listed source categories.
- (b) These emissions are based upon Indiana Air Emissions Summary Data for 2001.

Potential to Emit of Modification After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the modified emission units after controls.

Process/facility	Potential to Emit (tons/year) of Modification After Issuance							
	PM	PM10	SO ₂	VOC	CO	NO _x	Single HAP	Total HAPs
Vacuum Heater (200-H6)	0.238	0.238	0.894	0.172	2.633	2.405	0.056 (Hexane)	0.058
Total Emissions	0.238	0.238	0.894	0.172	2.633	2.405	0.056 (Hexane)	0.058
PSD Threshold Level	25	15	40	40	40	40	N/A	N/A

This modification to an existing major stationary source is not major because the emission increase of the modification is less than the PSD significant levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

Federal Rule Applicability

- (a) The requirements of 40 CFR Part 64, Compliance Assurance Monitoring, are not applicable to this modification. Such requirements apply to a pollutant-specific emissions unit (PSEU), as defined in 40 CFR 64.1, at a major source that is required to obtain a Part 70 or 71 permit if the PSEU meets the following criteria:
 - (1) the unit is subject to an emission limitation or standard for an applicable regulated air pollutant,
 - (2) the unit uses a control device as defined in 40 CFR 64.1 to comply with that emission limitation or standard, and

- (3) the unit has a potential to emit (PTE) before controls equal to or greater than 100 percent of the amount (tons per year) of the pollutant required for a source to be classified as a Part 70 major source.

This source was issued Part 70 Permit No. T129-7882-00003 on July 21, 2003. For this modification, no unit has potential pre-control emissions of a regulated air pollutant that are equal to or greater than 100 tons per year. Therefore, the requirements of 40 CFR Part 64, Compliance Assurance Monitoring, are not applicable to this modification.

- (a) The Vacuum Heater (200-H6) combusting refinery fuel gas is subject to the requirements of New Source Performance Standard, 326 IAC 12, (40 CFR 60.100, Subpart J - Standards of Performance for Petroleum Refineries), because this unit combusts refinery fuel gas and commenced construction after the rule applicability date of June 11, 1973.
- (a) 40 CFR 60.100 Applicability, designation of affected facility, and reconstruction.
- (i) The provisions of this subpart are applicable to the following affected facilities in petroleum refineries: fluid catalytic cracking unit catalyst regenerators, fuel gas combustion devices, and all Claus sulfur recovery plants except Claus plants of 20 long tons per day (LTD) or less. The Claus sulfur recovery plant need not be physically located within the boundaries of a petroleum refinery to be an affected facility, provided it processes gases produced within a petroleum refinery.
- (ii) Any fluid catalytic cracking unit catalyst regenerator or fuel gas combustion device under paragraph (i) of this section which commences construction or modification after June 11, 1973, or any Claus sulfur recovery plant under paragraph (i) of this section which commences construction or modification after October 4, 1976, is subject to the requirements of this subpart except as provided under paragraphs (iii) and (iv) of this section.
- (iii) Any fluid catalytic cracking unit catalyst regenerator under paragraph (ii) of this section which commences construction or modification on or before January 17, 1984, is exempted from 40 CFR 60.104(b).
- (iv) Any fluid catalytic cracking unit in which a contact material reacts with petroleum derivatives to improve feedstock quality and in which the contact material is regenerated by burning off coke and/or other deposits and that commences construction or modification on or before January 17, 1984, is exempt from this subpart.
- (v) For purposes of this subpart, under 40 CFR 60.15, the "fixed capital cost of the new components" includes the fixed capital cost of all depreciable components which are or will be replaced pursuant to all continuous programs of component replacement which are commenced within any 2-year period following January 17, 1984. For purposes of this paragraph, "commenced" means that the Permittee undertaken a continuous program of component replacement or that the Permittee has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of component replacement.
- (b) 40 CFR 60.104 Standards for sulfur oxides.
Each Permittee that is subject to the requirements of this subpart shall comply with the emission limitations set forth in this section on and after the date on which the initial performance test, required by 40 CFR 60.8, is completed, but not later than 60 days after achieving the maximum production rate at which the affected facility will be operated, or 180 days after initial startup, whichever comes first.

No Permittee subject to the provisions of this subpart shall:

- (i) Burn in any fuel gas combustion device any fuel gas that contains hydrogen sulfide (H₂S) in excess of 230 mg/dscm (0.10 gr/dscf). The combustion in a flare of process upset gases or fuel gas that is released to the flare as a result of relief valve leakage or other emergency malfunctions is exempt from this paragraph.
- (c) 40 CFR 60.105 Monitoring of emissions and operations.
- (A) Continuous monitoring systems shall be installed, calibrated, maintained, and operated by the owner or operator subject to the provisions of this subpart as follows:
 - (1) For fuel gas combustion devices subject to 40 CFR 60.104(a)(1), an instrument for continuously monitoring and recording the concentration by volume (dry basis, zero percent excess air) of SO₂ emissions into the atmosphere (except where an H₂S monitor is installed under paragraph (a)(4) of 40 CFR 60.105. The monitor shall include an oxygen monitor for correcting the data for excess air.
 - (i) The span values for this monitor are 50 ppm SO₂ and 25 percent oxygen (O₂).
 - (ii) The SO₂ monitoring level equivalent to the H₂S standard under 40 CFR 60.104(a)(1) shall be 20 ppm (dry basis, zero percent excess air).
 - (iii) The performance evaluations for this SO₂ monitor under Sec. 60.13(c) shall use Performance Specification 2. Methods 6 or 6C and 3 or 3A shall be used for conducting the relative accuracy evaluations. Method 6 samples shall be taken at a flow rate of approximately 2 liters/min for at least 30 minutes. The relative accuracy limit shall be 20 percent or 4 ppm, whichever is greater, and the calibration drift limit shall be 5 percent of the established span value.
 - (iv) Fuel gas combustion devices having a common source of fuel gas may be monitored at only one location (i.e., after one of the combustion devices), if monitoring at this location accurately represents the S₂ emissions into the atmosphere from each of the combustion devices.
 - (2) In place of the SO₂ monitor in paragraph (a)(3) of 40 CFR 60.105, an instrument for continuously monitoring and recording the concentration (dry basis) of H₂S in fuel gases before being burned in any fuel gas combustion device.
 - (i) The span value for this instrument is 425 mg/dscm H₂S.
 - (ii) Fuel gas combustion devices having a common source of fuel gas may be monitored at only one location, if monitoring at this location accurately represents the concentration of H₂S in the fuel gas being burned.
 - (iii) The performance evaluations for this H₂S monitor under Sec. 60.13(c) shall use Performance Specification 7. Method 11, 15, 15A, or 16 shall be used for conducting the relative accuracy evaluations.

- (3) For Claus sulfur recovery plants with oxidation control systems or reduction control systems followed by incineration subject to 40 CFR 60.104(a)(2)(i), an instrument for continuously monitoring and recording the concentration (dry basis, zero percent excess air) of SO₂ emissions into the atmosphere. The monitor shall include an oxygen monitor for correcting the data for excess air.
 - (i) The span values for this monitor are 500 ppm O₂ and 25 percent O₂.
 - (ii) The performance evaluations for this SO₂ monitor under Sec. 60.13(c) shall use Performance Specification 2. Methods 6 or 6C and 3 or 3A shall be used for conducting the relative accuracy evaluations.
- (4) The continuous monitoring systems under paragraphs (a)(8), (a)(9), and (a)(10) of 40 CFR 60.105 are operated and data recorded during all periods of operation of the affected facility including periods of startup, shutdown, or malfunction, except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments.
- (5) The Permittee shall use the following procedures to evaluate the continuous monitoring systems under paragraphs (a)(8), (a)(9), and (a)(10) of 40 CFR 60.105.
 - (i) Method 3 or 3A and Method 6 or 6C for the relative accuracy evaluations under the 40 CFR 60.13(e) performance evaluation.
 - (ii) Appendix F, Procedure 1, including quarterly accuracy determinations and daily calibration drift tests.

Testing methods and procedures for this subpart are required under 40 CFR 60.106.

The refinery fuel gas for the above listed emission unit contains less than 230 mg/dscm (0.10 gr/dscf) of H₂S, therefore the operation of this unit is in compliance with the requirement of Subpart J.

- (c) The one (1) Vacuum heater, identified as 200-H6, with a maximum heat input capacity of 5.49 MMBtu per hour, is subject to the requirements of the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters, 40 CFR 63, Subpart DDDDD. The vacuum heater is part of the affected source for the small gaseous fuel subcategory, as defined by 40 CFR 63.7575, because it has a rated capacity of less than or equal to 10 million British thermal units per hour heat input. However, pursuant to 40 CFR 63.7506(c), there are no applicable requirements from 40 CFR 63, Subpart DDDDD and 40 CFR 63, Subpart A for the affected source for the small gaseous fuel subcategory.

State Rule Applicability - Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration)

This existing source is a major stationary source because it is one of the 28 listed source categories (i.e. petroleum refineries) under 326 IAC 2-2, and potential sulfur dioxide (SO₂) volatile organic compound (VOC), carbon monoxide (CO), particulate matter (PM & PM-10) and nitrogen oxide (NO_x) emissions after control are greater than 100 tons per year. This modification to an existing major stationary source is not major because the emissions increase is less than the applicable PSD significant threshold levels. Therefore, pursuant to 326 IAC 2-2, the PSD requirements do not apply.

326 IAC 2-6 (Emission Reporting)

Since this source is required to have an operating permit under 326 IAC 2-7, Part 70 Permit Program, this source is subject to 326 IAC 2-6 (Emission Reporting). The source also has potential to emit greater than or equal to 2,500 tons per year of sulfur dioxide; therefore, an emission statement covering the previous calendar year must be submitted by July 1 annually. The emission statement shall contain, at a minimum, the information specified in 326 IAC 2-6-4.

326 IAC 5-1 (Opacity Limitations)

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

State Rule Applicability - Individual Facilities

326 IAC 2-4.1-1 (New Source Toxics Control)

326 IAC 2-4.1-1 applies to new or reconstructed facilities with potential emissions of any single HAP equal or greater than ten (10) tons per twelve (12) month period and potential emissions of a combination of HAPs greater than or equal to twenty-five (25) tons per twelve (12) month period. This modification is not subject to 326 IAC 2-4.1-1 (New Source Toxics Control) because the potential to emit of single HAP and total HAPs is less than 10 and 25 tons per year, respectively.

326 IAC 8-1-6 (New Facilities, General Reduction Requirements)

Rule 8-1-6 applies to new facilities (as of January 1, 1980) which have potential emissions of 25 tons or more per year of volatile organic compounds (VOC). The potential VOC emissions from Vacuum heater are below the twenty-five (25) tons per year applicability threshold and therefore, not subject to the requirements of 326 IAC 8-1-6.

Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this source are as follows:

- (a) The Vacuum heater (200-H6) has applicable compliance monitoring conditions as specified below:

Pursuant to 40 CFR 60.105, Continuous monitoring systems shall be installed, calibrated, maintained, and operated by the Permittee subject to the provisions of this subpart as follows:

- (1) For fuel gas combustion devices subject to 40 CFR 60.104(a)(1), an instrument for continuously monitoring and recording the concentration by volume (dry basis, zero percent excess air) of SO₂ emissions into the atmosphere (except where an H₂S monitor is installed under paragraph (a)(4) of 40 CFR 60.105. The monitor shall include an oxygen monitor for correcting the data for excess air.
 - (i) The span values for this monitor are 50 ppm SO₂ and 25 percent oxygen (O₂).
 - (ii) The SO₂ monitoring level equivalent to the H₂S standard under 40 CFR 60.104(a)(1) shall be 20 ppm (dry basis, zero percent excess air).
 - (iii) The performance evaluations for this SO₂ monitor under Sec. 60.13(c) shall use Performance Specification 2. Methods 6 or 6C and 3 or 3A shall be used for conducting the relative accuracy evaluations. Method 6 samples shall be taken at a flow rate of approximately 2 liters/min for at least 30 minutes. The relative accuracy limit shall be 20 percent or 4 ppm, whichever is greater, and the calibration drift limit shall be 5 percent of the established span value.
 - (iv) Fuel gas combustion devices having a common source of fuel gas may be monitored at only one location (i.e., after one of the combustion devices), if monitoring at this location accurately represents the SO₂ emissions into the atmosphere from each of the combustion devices.
- (2) In place of the SO₂ monitor in paragraph (a)(3) of 40 CFR 60.105, an instrument for continuously monitoring and recording the concentration (dry basis) of H₂S in fuel gases before being burned in any fuel gas combustion device.
 - (i) The span value for this instrument is 425 mg/dscm H₂S.
 - (ii) Fuel gas combustion devices having a common source of fuel gas may be monitored at only one location, if monitoring at this location accurately represents the concentration of H₂S in the fuel gas being burned.
 - (iii) The performance evaluations for this H₂S monitor under Sec. 60.13(c) shall use Performance Specification 7. Method 11, 15, 15A, or 16 shall be used for conducting the relative accuracy evaluations.
- (3) For Claus sulfur recovery plants with oxidation control systems or reduction control systems followed by incineration subject to 40 CFR 60.104(a)(2)(i), an instrument for continuously monitoring and recording the concentration (dry basis, zero percent excess air) of SO₂ emissions into the atmosphere. The monitor shall include an oxygen monitor for correcting the data for excess air.
 - (i) The span values for this monitor are 500 ppm O₂ and 25 percent O₂.
 - (ii) The performance evaluations for this SO₂ monitor under Sec. 60.13(c) shall use Performance Specification 2. Methods 6 or 6C and 3 or 3A shall be used for conducting the relative accuracy evaluations.
- (4) The continuous monitoring systems under paragraphs (a)(8), (a)(9), and (a)(10) of 40 CFR 60.105 are operated and data recorded during all periods of operation of the affected facility including periods of startup, shutdown, or malfunction, except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments.

- (5) The Permittee shall use the following procedures to evaluate the continuous monitoring systems under paragraphs (a)(8), (a)(9), and (a)(10) of 40 CFR 60.105.
- (i) Method 3 or 3A and Method 6 or 6C for the relative accuracy evaluations under the 40 CFR 60.13(e) performance evaluation.
 - (ii) Appendix F, Procedure 1, including quarterly accuracy determinations and daily calibration drift tests.

The monitoring conditions are necessary because the Vacuum heater (200-H6) must operate properly to ensure compliance with NSPS [40 CFR 60, Subpart J] and 326 IAC 2-7 (Part 70).

Changes Proposed

The changes listed below have been made to the Part 70 Operating Permit (T129-7882-00003).

A.3 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)]
[326 IAC 2-7-5(15)]

This stationary source consists of the following emission units and pollution control devices:

- (nn) **One (1) Vacuum heater, identified as 200-H6, with a maximum heat input rate of 5.49 mmBtu/hr, combusting refinery fuel gas and natural gas as a backup, installed in 2005 and exhausting to stack 126.**

SECTION D.2 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]

- (a) One (1) CCR Platformer Unit which includes one (1) CCR Platformer Heater, identified as 300 - H1, H2, H3 with a maximum heat input rate of 70.3 mmBtu/hr, combusting refinery fuel gas, installed in 1992 and exhausting to stack 74.
- (b) One (1) FCCU regenerator, identified as V-5 with an average throughput rate of 380 barrels fresh feed per hour, installed in 1950, controlled by a cyclone and exhausting to stack 10.
- (c) One (1) Hydrotreating Unit Reactor charge heater (210-H-100), identified as 122, with a maximum heat input rating of 19.25 MMBtu per hour, combusting refinery fuel gas as a primary fuel and natural gas as a back up fuel, and exhausting through one (1) stack identified as 122 (to be constructed in 2005).
- (d) One (1) Hydrotreating Unit Reboiler Stabilizer (210-H-101), identified as 123, with a maximum heat input rating of 19.94 MMBtu per hour, combusting refinery fuel gas as a primary fuel and natural gas as a back up fuel, and exhausting through one (1) stack identified as 123 (to be constructed in 2005).
- (e) One (1) Tail Gas Treatment System and Sulfur Recovery System identified as 124 and consisting of the following:
 - (1) One (1) Claus Unit Startup burner (520-H-101), identified as 124-1, with a maximum heat input rating of 1.54 MMBtu per hour, combusting natural gas, and exhausting through one (1) stack identified as 124-1 (to be constructed in 2005).
 - (2) One (1) Tail Gas Treating Unit (TGTU) Incinerator burner (520-H-101), identified as 124-2, with a maximum heat input rating of 1.29 MMBtu per hour, combusting refinery fuel gas as a primary fuel and natural as a back fuel, and exhausting through one (1) stack identified as 124-2 (to be constructed in 2005). In the event of unscheduled shutdown of the CCR unit, the Sulfur Recovery Unit effluent will be routed directly to the TGTU incinerator.
 - (3) One (1) Tail Gas Treating Unit (TGTU) Incinerator (520-H-162), identified as 124-3, with a maximum process flow rate of 48,000 dry standard cubic feet per day, and exhausting through one (1) stack identified as 124-3 (to be constructed in 2005).
 - (4) One (1) Sour Flare (520-H-163), identified as 124-4, with a maximum burner capacity of 0.92 MMBtu per hour, and a maximum process flow rate of 200 standard cubic feet per hour, and exhausting through one (1) stack identified as 124-4 (to be constructed in 2005).
- (f) **One (1) Vacuum heater, identified as 200-H6, with a maximum heat input rate of 5.49 mmBtu/hr, combusting refinery fuel gas and natural gas as a backup, installed in 2005 and exhausting to stack 126.**

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.2.3 Petroleum Refineries NSPS [326 IAC 12-1-1] [40 CFR 60, Subpart J]

The CCR Platformer Heater, Hydrotreater Unit Reactor Charge heater (122), Hydrotreater Unit Stabilizer Reboiler Heater (123), and Gas Treatment System & Sulfur Recovery System consisting of TGTU Incinerator Burner (124-2), and Sour Flare (124-4), **and Vacuum heater (200-H6)** are subject to the New Source Performance Standard, 326 IAC 12, (40 CFR Part 60.100, Subpart J) "Standards of Performance for Petroleum Refineries," because the refinery fuel gas combustion devices commenced construction or modification after June 11, 1973.

D.2.5 Standards for Sulfur Oxides Emissions from Fuel Gas Combustion Devices [40 CFR 60.104] [326 IAC 12]

Pursuant to 40 CFR 60.104, the following shall apply to the CCR Platformer Heater, Hydrotreater Unit Reactor Charge heater (122), Hydrotreater Unit Stabilizer Reboiler Heater (123), and Gas Treatment System & Sulfur Recovery System consisting of TGTU Incinerator Burner (124-2), **and Vacuum heater (200-H6)**:

The Permittee that is subject to the requirements of this subpart shall comply with the emission limitations set forth in this section on and after the date on which the initial performance test, required by 60.8, is completed, but not later than 60 days after achieving the maximum production rate at which the affected facility will be operated, or 180 days after initial startup, whichever comes first.

No Permittee subject to the provisions of this subpart shall burn in any fuel gas combustion device any fuel gas that contains hydrogen sulfide (H₂S) in excess of 230 mg/dscm (0.10 gr/dscf). The combustion in a flare of process upset gases or fuel gas that is released to the flare as a result of relief valve leakage or other emergency malfunctions is exempt from this paragraph.

D.2.14 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for the CCR platformer heater, identified as 300 - H1, H2, H3, FCCU regenerator, identified as V-5, Hydrotreater Unit Reactor Charge heater (122), Hydrotreater Unit Stabilizer Reboiler Heater (123), and Gas Treatment System & Sulfur Recovery System consisting of TGTU Incinerator burner (124-2), and TGTU incinerator (124-3), **Vacuum heater (200-H6)** and any control devices.

Compliance Determination Requirements [326 IAC 2-1.1-11] [326 IAC 2-7-6(1)]

D.2.15 Performance Testing [40 CFR 60.106]

During the period between 60 and 180 days following the effective date of becoming subject to the rule 40 CFR 60.104, in order to demonstrate compliance with Condition D.2.5, the Permittee shall perform H₂S testing for the CCR Platformer Heater, Hydrotreater Unit Reactor Charge heater (122), Hydrotreater Unit Stabilizer Reboiler Heater (123), and Gas Treatment System & Sulfur Recovery System consisting of TGTU Incinerator Burner (124-2), **and Vacuum heater (200-H6)** utilizing methods as approved by the Commissioner. Testing shall be conducted in accordance with Section C- Performance Testing.

Pursuant to 40 CFR 60.106, the following test methods and procedures shall apply to the refinery fuel gas combustion device:

- (a) In conducting the performance tests required in 60.8, the Permittee shall use as reference methods and procedures the test methods in appendix A of this part or other methods and procedures as specified in this section, except as provided in 60.8(b).
- (b) The Permittee shall determine compliance with the H₂S standard in 60.104(a)(1) as follows: Method 11 shall be used to determine the H₂S concentration. The gases entering the sampling train should be at about atmospheric pressure. If the pressure in the refinery fuel gas lines is relatively high, a flow control valve may be used to reduce the pressure. If the line pressure is high enough to operate the sampling train without a vacuum pump, the pump may be eliminated from the sampling train. The sample shall be drawn from a point near the centroid of the fuel gas line. The sampling time and sample volume shall be at least 10 minutes and 0.010 dscm (0.35 dscf). Two samples of equal sampling times shall be taken at about 1-hour intervals. The arithmetic average of these two samples shall constitute a run. For most fuel gases, sampling times exceeding 20 minutes may result in depletion of the collection solution, although fuel gases containing low concentrations of H₂S may necessitate sampling for longer periods of time.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.2.19 Continuous Monitoring [40 CFR 60.105]

- (b) Pursuant to 40 CFR 60.105, the Hydrotreater Unit Reactor Charge heater (122), Hydrotreater Unit Stabilizer Reboiler Heater (123), and Gas Treatment System & Sulfur Recovery System consisting of TGTU Incinerator Burner (124-2), and **Vaccum heater (200-H6)** have applicable compliance monitoring conditions as specified below:
- (1) Continuous monitoring systems shall be installed, calibrated, maintained, and operated by the owner or operator subject to the provisions of this subpart as follows:
- (a) For fuel gas combustion devices subject to 40 CFR 60.104(a)(1), an instrument for continuously monitoring and recording the concentration by volume (dry basis, zero percent excess air) of SO₂ emissions into the atmosphere (except where an H₂S monitor is installed under paragraph (a)(4) of 40 CFR 60.105. The monitor shall include an oxygen monitor for correcting the data for excess air.
- (i) The span values for this monitor are 50 ppm SO₂ and 25 percent oxygen (O₂).
- (ii) The SO₂ monitoring level equivalent to the H₂S standard under 40 CFR 60.104(a)(1) shall be 20 ppm (dry basis, zero percent excess air).
- (iii) The performance evaluations for this SO₂ monitor under Sec. 60.13(c) shall use Performance Specification 2. Methods 6 or 6C and 3 or 3A shall be used for conducting the relative accuracy evaluations. Method 6 samples shall be taken at a flow rate of approximately 2 liters/min for at least 30 minutes. The relative accuracy limit shall be 20 percent or 4 ppm, whichever is greater, and the calibration drift limit shall be 5 percent of the established span value.
- (iv) Fuel gas combustion devices having a common source of fuel gas may be monitored at only one location (i.e., after one of the combustion devices), if monitoring at this location accurately represents the SO₂ emissions into the atmosphere from each of the combustion devices.
- (b) In place of the SO₂ monitor in paragraph (a)(3) of 40 CFR 60.105, an instrument for continuously monitoring and recording the concentration (dry basis) of H₂S in fuel gases before being burned in any fuel gas combustion device.
- (i) The span value for this instrument is 425 mg/dscm H₂S.
- (ii) Fuel gas combustion devices having a common source of fuel gas may be monitored at only one location, if monitoring at this location accurately represents the concentration of H₂S in the fuel gas being burned.
- (iii) The performance evaluations for this H₂S monitor under Sec. 60.13(c) shall use Performance Specification 7. Method 11, 15, 15A, or 16 shall be used for conducting the relative accuracy evaluations.
- (c) For Claus sulfur recovery plants with oxidation control systems or reduction control systems followed by incineration subject to 40 CFR 60.104(a)(2)(i), an instrument for continuously monitoring and recording the concentration (dry basis, zero percent excess air) of SO₂ emissions into the atmosphere. The monitor shall include an oxygen monitor for correcting the data for excess air.
- (i) The span values for this monitor are 500 ppm O₂ and 25 percent O₂.
- (ii) The performance evaluations for this SO₂ monitor under Sec. 60.13(c) shall use Performance Specification 2. Methods 6 or 6C and 3 or 3A shall be used for conducting the relative accuracy evaluations.

- (d) The continuous monitoring systems under paragraphs (a)(8), (a)(9), and (a)(10) of 40 CFR 60.105 are operated and data recorded during all periods of operation of the affected facility including periods of startup, shutdown, or malfunction, except for continuous monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments.
- (e) The Permittee shall use the following procedures to evaluate the continuous monitoring systems under paragraphs (a)(8), (a)(9), and (a)(10) of 40 CFR 60.105.
 - (i) Method 3 or 3A and Method 6 or 6C for the relative accuracy evaluations under the 40 CFR 60.13(e) performance evaluation.
 - (ii) Appendix F, Procedure 1, including quarterly accuracy determinations and daily calibration drift tests.

Conclusion

The construction and operation of vacuum heater shall be subject to the conditions of the attached proposed Minor Source Modification No.:129-21168-00003 and Significant Permit Modification No.: 129-21251-00003.

Appendix A: Emission Calculations
Natural Gas and Refinery Fuel Gas Combustion
Less than 100 MMBtu/hr

Company Name: Countrymark Cooperative, LLP
Address City IN Zip: 1200 Refinery Road, Mount Vernon, IN 47620
Title V MSM No.: 129-21168-00003
Reviewer: Adeel Yousuf / EVP
Date: May 10, 2005

A. Vacuum Pre-Heater (126)

Equipment ID No.	Name	Primary Fuel Type	Back up Fuel Type	Maximum Heat Input Rate (MMBtu/hr)
200-H6	Vacuum Pre-Heater	Refinery Fuel Gas	Natural Gas	5.49

Refinery Fuel Gas Heating Value = 767 BTU/Scf; Natural Gas Heating Value = 1020 BTU/Scf

1. Refinery Fuel Gas Combustion (Primary Fuel)

Worst Case

Pollutant	Maximum Rate (MMcf/hr)	Emission Factor (lb/MMcf)	Emission Rate (lb/hr)	Maximum Uncontrolled Emissions (tons/yr)
PM	0.007	7.6	0.054	0.238
PM10	0.007	7.6	0.054	0.238
SO ₂ *	0.007	950 x %S	0.204	0.894
NO _x *	0.007	0.1	0.549	2.405
VOC	0.007	5.5	0.039	0.172
CO	0.007	84	0.601	2.633
Lead	0.007	0.0005	0.000	0.000
Benzene	0.007	0.0021	0.000	0.000
Formaldehyde	0.007	0.075	0.001	0.002
Hexane	0.007	1.8	0.013	0.056
Napthalene	0.007	0.00061	0.000	0.000
Toluene	0.007	0.0034	0.000	0.000

Notes:

Sulfur content of Refinery fuel gas is 0.03% (equal to NSPS Subpart J limit of 0.01 gr/dscf)

Refinery fuel gas emission factors are taken from AP-42 Section 1.4-7 Natural Gas Combustion, except SO₂ and NO_x.

* SO₂ emission factor is taken from EPA 450-4-90-003 and NO_x emission factor of 0.10 lb/mmbtu is provided by the burner vendor (guaranteed).

Refinery fuel gas HAP emission factors assumed to be the same as natural gas.

2. Natural Gas Combustion (Back-up Fuel)

Pollutant	Maximum Rate (MMcf/hr)	Emission Factor (lb/MMcf)	Emission Rate (lb/hr)	Maximum Uncontrolled Emissions (tons/yr)
PM	0.005	7.6	0.041	0.179
PM10	0.005	7.6	0.041	0.179
SO ₂	0.005	0.6	0.003	0.014
NO _x *	0.005	0.1	0.549	2.405
VOC	0.005	5.5	0.030	0.130
CO	0.005	84	0.452	1.980
Lead	0.005	0.0005	0.000	0.000
Benzene	0.005	0.0021	0.000	0.000
Formaldehyde	0.005	0.075	0.000	0.002
Hexane	0.005	1.8	0.010	0.042
Napthalene	0.005	0.00061	0.000	0.000
Toluene	0.005	0.0034	0.000	0.000

Notes:

Natural gas combustion emission factors are taken from AP-42 Section 1.4-7 Natural Gas Combustion, except NO_x.

* NO_x emission factor 0.10 lb/mmbtu is provided by the burner vendor (guaranteed).

Methodology

Emission (tons/yr) = Throughput (MMCF/hr) x 8760 (hr/yr) x Emission Factor (lb/MMCF) / 2,000 lb/ton